Process for Assessing Climate Risks to Center Assets

- Using Hurricane Katrina modeling, concentrated on high water levels to evaluate impact to assets.
- Preliminary assessment of impact to critical assets is complete.
- Discussions continue regarding prioritization of assets based on test operations as well as the operations of over thirty tenants.

Chief Climate Impacts of Concern

- Based on adaptation workshop or other vulnerability assessment, identified the following infrastructure risks:

1. Storm Surge / Test Stand Basements / short term
2. Storm Surge / Test Stand Sub-basements / short term
3. Storm Surge / Test Stand Tunnels / short term
4. Storm Surge / Test Stand Control Centers / short term
5. Storm Surge / Canal and Barge Moorings / short term
6. Storm Surge / Septic Lagoons / short term
7. Storm Surge / Cryogenic Area / short term
8. Storm Surge / High Pressure Industrial Water / short term

Specific Risks

- The main mission at SSC is testing engines.
- High water could impact and/or shut down critical equipment supporting test stand operations.
- Specific Equipment includes:
  - Fire Alarm Systems
  - Fire Suppression Systems
  - 13.8 kV electrical sub-stations
  - Electrical transfer switches
  - HVAC Systems
  - Elevator Systems
  - Generators at HPIW
  - Communication/Controls in Tunnels

Other Important Non-Infrastructure Risks?

- SSC is working with the Gulf Regional Planning Commission and the South Mississippi Planning Organization to look at climate change matters that affect the entire Mississippi Gulf Coast.
- In addition, SSC is working with Hancock County in the update of their Hazard Mitigation Plan that covers the planning for hurricanes and sea level rise for the area. Hancock County has entered into an agreement with Stennis Space Center to work collaboratively when it comes to Emergency Operations and Continuity of Operations.

  Several mutual aid agreements are in place to assist NASA and vice versa when the need develops.

<u>This is the primary areas where we have developed “social capital” and collaborative capability that we can call upon when needed.</u>

Information Gathering or other Efforts to Assess Risk or Plan Adaptation

What we're doing now:

- Climate Action Team (CAT) continuing discussion on vulnerabilities associated with climate changes at SSC.
- Continue to gather elevation and hydraulic information to determine reasonable solutions.
  - *Determine current building and system elevations*
  - *Identify buildings and systems at risk for various storm surge elevations*
  - *Evaluate the probability of various storm surge elevations occurring*
  - *Develop a risk matrix based on probability and buildings/systems affected*

Challenges and Accomplishments

- Our biggest challenges thus far have been:
  - ***Understanding risk based on probabilities of an event occurring***
  - ***Defining a water level as a basis for design***

- Our best accomplishments thus far have been:
  - ***Climate Action Team***
  - ***Partnerships with Tenants at SSC***
  - ***Beginning to understand the challenge***
  - ***Lessons learned from actual hurricane/storm data***